

**REMARKS**

Claims 1-38 are pending and under consideration. Claims 1, 5, 9, 18 and 29 have been amended. No new matter is presented.

The specification was objected to as failing to provide proper antecedent basis for the claimed subject matter. Specifically, the Examiner asserts that there is no antecedent basis for “spectral continuum of random noise” and “spectral bands.” This rejection is overcome in part and traversed in part.

The Examiner asserts that the specification fails to disclose the term “random noise.” However, in the specification at pg. 1, beginning at line 17, it is disclosed that conventional noise sources are typically constructed using noise tubes and noise diodes, and specifically line 19 states “. . . output noise is generated by an electric discharge gas, which is a random process.” Further, at pg. 1, lines 28-29, the specification states “. . . these processes generate many carriers at random, a high level noise is produced.” It is clear from these discussions that the present application and claims are directed to producing random noise. The Examiner further questions the meaning of the term “random noise.” This is a common term that is well known in the art as defined by the IEEE (The Institute of Electrical and Electronics Engineers, Inc) Standard Dictionary of electrical and Electronics Term and is defined as noise that comprises transient disturbances occurring at random. Note: The part of the noise that is unpredictable except in a statistical sense. The term is most frequently applied to the limiting case where number of transit disturbances per unit time is large, so that the spectral characteristics are the same as those of thermal noise. Thermal noise and shot noise are special cases of random noise. As described in the “Description of the Related Art” section of the specification, in the RF, microwave and millimeter-wave bands, noise is generated either thermally (thermal noise), by electric discharge in a gas or by tunneling and avalanche (shot noise), therefore by definition it is “random noise”.

Thus, in light of the foregoing remarks and amendments, Applicants respectfully request that this rejection be withdrawn.

Claims 1-17 were rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. This rejection is overcome in part and traversed in part.

The claims have been amended to remove the terms objected to by the Examiner, with the exception of “random noise,” which as submitted above, is certainly described in the specification sufficiently to overcome this rejection. Applicants therefore respectfully request that this rejection be withdrawn.

Claims 1-5 were rejected under 35 USC 112, second paragraph. Applicants have taken care to amend these claims to correct the noted antecedent basis problems. Therefore, Applicants request that this rejection be withdrawn.

Claims 1-4, 9, and 17 were stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Logan (U.S. Patent No. 4,521,861). Applicants respectfully traverse this rejection.

The claimed invention is directed to a noise generating apparatus and method, and specifically, a continuum of random noise in the submillimeter and millimeter wavelengths. The initial noise may be generated, for example, by a noise source such as a diode, a noise tube, or a thermal source (see specification, page 4, lines 14-18). The conversion from microwave noise into millimeter and submillimeter frequencies may occur by employing a frequency multiplier thus generating a continuum of random noise in the millimeter and submillimeter bands. As stated previously, the claimed invention does not use an oscillator of any kind.

In contrast, as was the case with the references cited in the previous Action, Logan discloses using a local oscillator (see Fig. 6, element 122). Thus, Logan does not teach or suggest the features of claims 1-4, 9 and 17. Applicants respectfully request that this rejection be withdrawn.

Claims 5, 10-16, 18-27, 29 and 32-34 were rejected under 35 USC 103(a) as being unpatentable over Logan in view of Tipton (U.S. Patent No. 4,742,561). This rejection is respectfully traversed.


As stated above, the independent claims 1, 9, 18 and 29 recite that the millimeter- and submillimeter-wave noise is generated without an oscillator. Logan teaches the use of an oscillator. Thus, Logan teaches away from the invention claimed in claims 1 and 9, and those which depend from claims 1 and 9. Further, as pointed out in Applicants' previous response, the output of the claimed invention contains only a high-level, continuum of random noise and no monochromatic, high-power harmonics of the oscillator. The claimed invention may be used as a broadband noise source. Whereas, even if Logan and Tipton were modified to generate millimeter and submillimeter- wave noise, because they use an oscillator the output noise spectrum of their method includes the harmonics of the actual oscillator. These monochromatic, high power signals from the actual oscillator dominate the entire output spectrum therefore they are not equivalent to the claimed invention. The claimed invention produces a pure random noise output uncontaminated by such strong monochromatic components because no oscillator is used. Thus, the features of the independent claims are not taught or suggested by the cited art, either alone or in combination. The dependent claims are allowable at least due to their respective dependencies. Applicants respectfully request that this rejection be withdrawn.

The application is in condition for allowance and the prompt issuance of a notice of allowance is respectfully requested. If there are any additional fees due with the filing of this

Amendment, not otherwise accounted for herein, including any further fees for an extension of time, applicant respectfully requests that extension and further requests that any and all such fees be charged to Deposit Account No. 03-1952.

Respectfully submitted  
MORRISON & FOERSTER, LLP,

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By:   
Deborah S. Gladstein  
Registration No. 43,636

Morrison & Foerster, LLP  
1650 Tysons Boulevard; Suite 300  
McLean, Virginia 22102  
Telephone: (703) 760-7700  
Facsimile: (703) 760-7777